

Amendments to the Drawings

The attached sheet of drawings includes new Figure 13. The amendments to the drawings do not introduce new matter and are supported by the application as filed. New Figure 13 is similar to the drawing shown in Figure 10 but shows the transducers positioned along the entire length of the housing.

Attachment: New Sheet

Remarks**Status of the Claims**

Claims 21, 24-26, 29-35, and 37-41 are pending and ready for further action on the merits. Claims 21, 31, 34, and 37 have been amended. The specification has been amended at the paragraph beginning on page 12, line 17 of the specification as filed. Figure 13 has been added.

The drawings stand objected to under 37 CFR 1.83(a) as allegedly not showing every feature of the invention specified in the claims. Claims 21, 24, 29, 31, 32, 37, 38, 39, and 41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over any one of: U.S. Patent No. 4,966,177 to John, Jr. et al. (“John, Jr.) [either alone or in combination with any one of U.S. Patent No. 3,658,643 to Spenke (“Spenke”), U.S. Patent No. 3,783,832 to Moon (“Moon”), or U.S. Patent No. 3,290,224 to Robertson (“Robertson”)]; U.S. Patent No. 4,372,787 to Fields et al. (“Fields”) [either alone or in combination with John, Jr.]; or JP Patent No. JP 9220545 to Minoru et al. (“Minoru”) [either alone or in combination with John, Jr., and in further view of U.S. Patent 5,200,666 to Walter et al. (“Walter”). Claims 25 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over any one of John, Jr. [either alone or in combination with any one of Spenke, Moon, or Robertson] or Fields [either alone or in combination with John, Jr.] and further in view of Walter. Claims 30, 33, and 40 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over any one of John, Jr. [either alone or in combination with any one of Spenke, Moon, or Robertson] or Fields [either alone or in combination with John, Jr.] or Minoru [either alone or

in combination with John, Jr.] and further in view of Walter as applied to claims 21, 24, 29, 31, 32, 37, 38, 39 above, and further in view of U.S. Patent No. 5,467,791 to Kato et al. ("Kato") or U.S. Patent No. 5,377,237 to Richardson et al. ("Richardson"), either alone or in combination. Claims 34 and 35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Minoru [either alone or in combination with John, Jr.] and further in view of Walter as applied to claims 21, 24, 29, 31, 32, 37, 38, 39 above, and further in view of Kato or Richardson, either alone or in combination.

Applicants respectfully request reconsideration of the present application and the allowance of all claims now presented.

Interview Summary

Applicants thank the Examiner for conducting a telephonic interview with Applicants' representatives, Bret Winterle and Dean Powell, on July 1, 2008. The pending claims, the cited prior art, and present rejections and objections were discussed.

Applicants asserted that the prior art did not describe, teach, or suggest an apparatus configured to clean an assembled irradiated nuclear fuel assembly where the assembly is comprised of multiple fuel rods. Applicants proposed to amend the claims to clarify that the assembly comprised multiple fuel rods. The Examiner agreed that the cited prior art, specifically Spenke, Moon, and/or Robertson in combination with any of the other cited references,

did not teach such an embodiment and that a claim with a limitation to clarify that the assembly comprises multiple fuel rods would be patentable over the cited prior art.

During further discussion of the prior art, the Examiner agreed that a single reference that teaches all of the elements as claimed has not been cited. Applicants asserted that the presently pending claims provide a solution to a long-felt, but unmet, need in the nuclear industry to be able to clean an irradiated fuel assembly having multiple fuel rods without first having to take the time, effort, and precautions necessary to disassemble the assembly. The Examiner agreed that such a long-felt, but unmet need does exist within the nuclear industry.

With respect to the objections to the drawings, the Examiner agreed that the addition of a new figure, similar to Figure 10, showing the transducers positioned along the entire length of the housing would overcome the objection and would not be new matter, as the specification and claims as filed teach such a configuration.

Objection to the Drawings and 37 CFR 1.83(a)

The drawings stand objected to under 37 CFR 1.83(a) as not showing every feature specified in the claims. More specifically, the drawings are objected to for not showing transducers positioned along the entire length of the housing. Applicants have amended the drawings and included with the

present Response a New Sheet including the new Figure 13. Applicants assert that no new matter has been entered by way of the amendment. For example, the specification as originally filed, at page 12, lines 21-22, states, "the transducers 22 may be positioned along the entire length of the housing 24." Accordingly, the paragraph at page 12, line 17-22 of the specification as filed, has been amended to reflect the presence of the new figure. As a result, Applicants respectfully request the removal of all 37 C.F.R 1.83(a) objections.

Claim Rejections

35 U.S.C. 103(a) Rejections

The rejection of claims 21, 24, 29, 31, 32, 37, 38, 39, and 41 under 35 U.S.C. § 103(a) as being unpatentable over John Jr. [either alone or in combination with any one of Spenke, Moon, or Robertson]; Fields [either alone or in combination with John, Jr.]; or Minoru [either alone or in combination with John, Jr.], and in further view of Walter is respectfully traversed.

Applicants assert that a *prima facie* case of obvious has not been established as all of the claimed limitations have not been taught or suggested by the prior art. See *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Among other deficiencies, the cited prior art, for example, does not describe, teach, or suggest an apparatus configured to clean an assembled irradiated nuclear fuel assembly having multiple fuel rods as recited in the presently claimed invention. The apparatus comprises a housing and a plurality of

omnidirectional transducers that are configured to clean an irradiated fuel assembly having multiple fuel rods without disassembling the assembly.

In contrast, John Jr. describes a system for cleaning fuel tubes one at a time. Fields describes a tub for cleaning radiators where transducers are placed on the bottom of the tub. Minoru describes a double tank that uses six transducers, each configured to emit a directional ultrasonic wave in a different direction from the other five transducers.

First, the Office Action provides that “[a]nyone of John, Jr. et al. or Fields et al. or Minoru et al disclose the applicant’s claims except for the configuration of the transducers.” See Office Action, page 5. While applicants respectfully disagree that any of John, Jr., Fields et al., or Minoru disclose all of the limitations as presently claimed except for the configuration of the transducers, Applicants agree that none of these references describe the configuration of the transducers as claimed. Applicants assert that the claimed configuration of the transducers is also not described in any of the cited prior art, and combining any of John, Jr. , Fields, or Minoru with any of Spenke, Moon, and/or Robertson does not cure this deficiency of John Jr., Fields, or Minoru. It would not have been obvious to a person having ordinary skill in the art to configure the transducers as claimed, and any combination of John Jr., Fields, Minoru, Spenke, Moon, and/or Robertson fails to teach each and every claimed element; therefore, the combination of references does not render the claims as pending obvious.

Further, combination with Spenke, Moon, and/or Robertson does not cure additional deficiencies of the John, Jr., Fields, or Minoru The Office Action provides that each of Spenke, Moon, or Robertson “teaches an assembled nuclear fuel assembly comprising a single tubular fuel element.” See Office Action, page 7. A description of a single tubular fuel element (such as is alleged to be disclosed in Spenke, Moon, or Robertson) does not cure the deficiencies of

John, Jr., Fields, or Minoru, as the presently recited claims include a limitation that the assembly has multiple fuel rods. It would not have been obvious to a person having ordinary skill in the art to provide an apparatus configured to clean an assembled irradiated nuclear fuel assembly having multiple fuel rods based upon a combination of references that fail to describe, teach, or suggest cleaning assemblies comprising multiple fuel rods without first having to disassemble the assembly.

There has been a long-felt, unmet need in the nuclear industry to have an apparatus configured to clean an irradiated assembly with multiple fuel rods without first having to disassemble the assembly.¹ The presence of this long-felt, unmet need is further evidence of the non-obviousness of the presently recited claims.

The presence of “configured to clean an assembled irradiated nuclear fuel assembly having multiple fuel rods” in the preamble further distinguishes the presently claimed methods over combinations of prior art. “If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is ‘necessary to give life, meaning, and vitality’ to the claim, then the claim preamble should be construed as if in the balance of the claim.” *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999).² The phrase “configured to clean an

¹ See Interview Summary where an agreement was reached regarding this long-felt, unmet need. Such long-felt, unmet need should not be considered the only need that that present listing of claims meets. Among others needs, the present listing of claims also provides an apparatus configured to clean an irradiated assembly where the assembly may be used in a subsequent fuel cycle.

² Applicants direct the Examiner’s attention to *Kropa v. Robie*, 187 F.2d 150, 88 USPQ 478 (CCPA 1951). As found in the MPEP § 2111.02, the *Kropa v. Robie* court stated:

A preamble reciting “An abrasive article” was deemed essential to point out the invention defined by claims to an article comprising abrasive grains and a hardened binder and the process of making it. The court stated “it is only by that phrase that it can be known that the subject matter defined by the claims is comprised as an abrasive article. Every union of substances capable inter alia of use as abrasive grains and a binder is not an ‘abrasive article.’” Therefore, the preamble served to further define the structure of the article produced.

assembled irradiated nuclear fuel assembly having multiple fuel rods" is the way it can be known that the subject matter defined by the claims comprises an apparatus for cleaning an assembled irradiated nuclear fuel assembly having multiple fuel rods. The introductory language in the preambles of the present claims points out an express limitation of the claims. Moreover, the preamble of these claims distinguishes them from the cited prior art references, which are *not* configured to clean an assembled irradiated nuclear fuel assembly having multiple fuel rods.

For at least the above reasons, since any combination of John, Jr., Fields, Minoru, Spenke, Moon, and Robertson does not teach or suggest all of the features of the claims, Applicants respectfully submit that claims 21, 31, and 37 overcome all 35 U.S.C. § 103 rejections. Since claims 24, 29, 32, 38, and 39, and 41 depend from and further limit independent claims 21, 31, and 37, Applicants respectfully submit that claims 24, 29, 32, 38, and 39, and 41 also overcome all 35 U.S.C. § 103 rejections.

Claims 25 and 26 stand rejected under 35 U.S.C. 103(a) as being unpatentable over John, Jr., [either alone or in combination with any one of Spenke, Moon, or Robertson] or Fields [either alone or in combination with John, Jr.] and further in view of Walter. As previously stated for claim 21, John, Jr. [either alone or in combination with any one of Spenke, Moon, or Robertson], Fields, and Minoru do not describe all of the features of the claims. As claims 25 and 26 depend from independent claim 21, Applicants respectfully submit that claims 25 and 26 also overcome all 35 USC 103 rejections.

Claims 30, 33, and 40 stand rejected under 35 U.S.C. 103(a) as being unpatentable over John, Jr. [either alone or in combination with any one of Spenke, Moon, or Robertson] or Fields [either alone or in combination with John,

Jr.] or Minoru [either alone or in combination with John, Jr.] and further in view of Walter as applied to claims 21, 24, 29, 31, 32, 37, 38, 39 above, and further in view of Kato or Richardson, either alone or in combination. Since claims 30, 33, and 40 depend from independent claims 21, 31, or 37 and any combination of John, Jr. [in view of Spenke, Moon, or Robertson], Fields, Minoru, Kato, and Richardson does not describe all of the features of the independent claims, Applicants respectfully submit that claims 30, 33, and 40 overcome all 35 USC 103 rejections.

Claims 34 and 35 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Minoru [either alone or in combination with John, Jr.] and further in view of Walter as applied to claims 21, 24, 29, 31, 32, 37, 38, 39 above, and further in view of Kato or Richardson, either alone or in combination. In reference to independent claim 34, Applicants respectfully submit that none of Minoru, John. Jr., Walter, Kato, and Richardson teaches or suggests all of the features of the claims similar to as described above. In addition, no motivation exists to combine Minoru, John. Jr., Walter, Kato, or Richardson. Since Minoru, John. Jr., Walter, Kato, and Richardson do not describe all the features of claim 34, Applicants respectfully submit that claim 34 overcomes all 35 USC 103 rejections. Since claim 35 depends from independent claim 34, Applicants respectfully submit that claim 35 also overcomes all 35 USC 103 rejections.

Dependent Claims

In responding to the claim rejections above, Applicants submit that the dependent claims are patentable based on their dependency from independent claims, which Applicants have shown to be patentable. Thus, in many instances, Applicants have not provided separate remarks specifically directed to the

Examiner's grounds for rejecting the dependent claims. Applicants' failure to comment on or otherwise traverse the Examiner's rejection of the dependent claims should not be viewed as agreement, on the part of the Applicants, with the Examiner's grounds for rejection.

Conclusion

With the above amendments and remarks, Applicants believes that all objections and/or rejections have been obviated. Thus, each of the claims remaining in the application is in condition for immediate allowance. A passage of the instant claimed invention to allowance is earnestly solicited.

Applicants believe that no additional fee, other than for the petition for an extension of time, is necessary; however, should a fee be deemed to be necessary, the Commissioner is hereby authorized to charge any fees required by this action or any future action to Deposit Account No. 16-1435.

Should the Examiner have any questions relating to the instant application, the Examiner is invited to telephone the undersigned at (336) 607-7347 or Bret T. Winterle (Reg. No. 54,546) at (336) 607-7405 to discuss any matter relating to this application.

Respectfully submitted,

Date: 07/21/08 (Monday)



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